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ABSTRACT

During the prehistoric era, most advances in society were developed by women. These advances included agriculture, building, weaving, basketry, pottery, woodworking, trading, and domesticating animals. Pottery and basketry allowed for the long-term storage of food and water and permitted humanity to stop living the nomadic life and begin the first settled communities. The first wheels, appearing in the New Stone Age, were developed in connection with weaving and pottery. Throughout the Old Testament, women are often seen as traders, farmers, and builders. Ancient Egypt has been described by many researchers as the society with the highest documented status ever attained by women. The names of many women appear throughout the annals of ancient alchemy. European women who settled North America brought their skills with them and established themselves in business at approximately the same moment they unpacked their bags. Women were the mainstay of the early mills during the Industrial Revolution, and were the first to exhibit a social consciousness. With the invention of the typewriter and the opening of the first stenography school, women began entering the business world in large numbers. Women continued to enter new fields--science, technology, business, and the trades--and make contributions. This document offers insights, glimpses, and short biographies of these women and others in history. Classroom ideas, notes, and a bibliography are included. (SM)

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WOMEN AT WORK

NORTHEAST NETWORK FOR CURRICULUM COORDINATION

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INTRODUCTION

■ Simply stated, this is a book about women working; it is a book of role models. Some are well-known individuals, while other unknowns are just interesting people. Their common ground? They are all accomplishers. WOMEN AT WORK deals with past and present and is, to some degree, concentrated in the areas now considered non-traditional work — science, technology, the trades, industry, business. Those who have worked in factories, owned or managed their own businesses, set records, or developed innovations are all a part of this portfolio. About half of the space is devoted to women who have at one time or another lived and/or worked in New Jersey.

Women are frequently not evident in school materials. Those few mentioned are usually in isolated context. Women have, in fact, frequently worked in groups, as helpers to themselves and to other women and men. It must also be noted that the constant use of the generic "he" leaves the impression that only men take part in the world at large.

WOMEN AT WORK does not concern itself with being a full history of women as wage earners, for that is a project of a thousand pages. These twenty-four pages deal with glimpses, insights, and short biographies of a few people or groups of people. Arranged in such a way as to be of use in many school subject areas, it is ultimately hoped that perhaps an art teacher will point out occupations that show up in medieval paintings and woodcuts, a social studies teacher will note that in the early stages of industrialization the vast majority of workers were women, or a science teacher will show the many contributions of women in the different areas of science.

The goal of this project is to expand horizons, to give teachers and students material that more clearly defines the world of work. ●

World War I. Women's Motor Corps of America, drilling on St. Georges Field, Rahway, New Jersey.

■ "I can remember quite well that when I first discovered I liked to read biography I tried to find good biographies of women. I could have been scarcely more than twelve or thirteen then, for we moved to another town about that time and I was quick to investigate the shelves of the new school library. I found no biographies of women.

"Later I went through a period when it seemed that courtesans and female saints were the only women who, as a result of their own actions, became worthy of being written about. Queens and raving beauties decorated the pages of some of the books I read, but such women as these were born to fame. And realistic young women who read about them could never emulate them for the simple reason that we had already been born without the qualifications. There were still the saints and courtesans. But the saints seemed far removed and we had been trained to believe that the courtesans were wicked and did not fit well into the modern scheme of things.

"Oh yes, to be sure, we enjoyed the lives of Washington and Jefferson and Lincoln and many of the others. But we never imagined ourselves as president as we read. It was good reading and had its important place. But I wanted to know about people who once upon a time were pretty much like me. I wanted to know how women of all kinds (not just the saints and courtesans and queens and raving beauties) lived and thought and felt and acted. . . I have always hunted the bookshelves as well as in life to know something more about real men and real women.

". . . Many books must still be written before young women will have a picture, comparable to that long provided for their brothers, of women who are worth writing about because, born to any condition of life whatsoever, they have worked and lived and achieved — or greatly failed to achieve — and are therefore worth reading about."

Edna Yost, in her introduction to
AMERICAN WOMEN OF SCIENCE,
1943

WOMEN AT WORK

By Sharon Valiant

Produced By
Educational Improvement Center-Central
Thomas J. Rookey, Executive Director
Shirley B. Cathie, Project Director

In Cooperation With
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Office for Equal Access

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For additional copies, contact:
Northeast Network for Curriculum Coordination
Rutgers, The State University
Building 4103, Kilmer Campus
New Brunswick, New Jersey 08903
(201-932-3845)

CONNECTICUT: Mr. Angelo Tedesco, Connecticut State Department of Education, State Office Building, Box 2219, Hartford, Conn. 06115. **MAINE:** Mr. Maurice Parent, Department of Educational and Cultural Services, Augusta, Maine 04333. **MASSACHUSETTS:** Mr. John McDonagh, Massachusetts Department of Education, 31 St. James Avenue, Boston, Mass 02116. **NEW HAMPSHIRE:** Mr. Richard Montieth, New Hampshire State Department of Education, 105 Loudon Road, Concord, New Hampshire 03301. **NEW JERSEY:** Mr. Gregory Buontempo, New Jersey State Department of Education, Trenton, New Jersey 08625. **NEW YORK:** Dr. Willard Daggett, State Education Department, Albany, New York 12230. **PUERTO RICO:** Ms. Awilda Ramirez, Department of Education, P.O. Box 759, Hato Rey, Puerto Rico 00919. **RHODE ISLAND:** Mr. Arthur Tartaglione, Rhode Island Department of Education, 22 Hayes Street, Providence, Rhode Island 02908. **VERMONT:** Mr. Walter Wimmer, Vermont Department of Education, Montpelier, Vermont 05602. **VIRGIN ISLANDS:** Mr. Aubrey Roebuck, Department of Education, P.O. Box 630, St. Thomas, Virgin Islands. **PROJECT DIRECTOR:** Dr. Joseph F. Kelly, N.J. Department of Education. **ASSOCIATE DIRECTOR:** Frederick L. Cappello, N.J. Department of Education, Trenton, N.J. 08625. **ASSISTANT DIRECTOR:** Denise Frobose. **CURRICULUM DISSEMINATION COORDINATOR:** Gordon Law, Rutgers University, New Brunswick, N.J. 08903.

QUIZ

1. The world's most famous automobile mechanic:
   A. Ella Grasso
   B. Queen Elizabeth II
   C. Josephine Baker
   D. Shirley Chisholm

2. Developer of the door-to-door selling method later used by Fuller Brush and dozens of other companies:
   A. Olive Ann Beech
   B. Dona Maria de Benavides
   C. Madame C.J. Walker
   D. Gertrude Ederle

3. The most famous and admired woman of the Depression era was a (an):
   A. restaurant owner
   B. engineer
   C. pilot
   D. archaeologist

4. She built the first solar house:
   A. Maria Telkes
   B. Elizabeth Pickering
   C. Lydia Child
   D. Ida Pfieffer

5. She was the architect for William Randolph Hearst's San Simeon:
   A. Elinor Smith
   B. Helen Taussig
   C. Maria Bartola
   D. Julia Morgan

6. The first American woman to become a bank president:
   A. Zelia Nuttall
   B. Gertrude Vanderbilt Whitney
   C. Maggie Walker
   D. Gloria Dean Scott

7. The scientist who discovered nuclear fission:
   A. Lise Meitner
   B. Irene Joliot-Curie
   C. Maria Goeppert-Mayer
   D. Marie Curie

8. The first strike ever held in the United States was in:
   A. Trenton, N.J.
   B. Lowell, Mass.
   C. New York, N.Y.
   D. Paterson, N.J.

9. After her investigations, the federal government lodged over twenty anti-trust suits against John D. Rockefeller:
   A. Ida Wells-Barnett
   B. Ida Tarbell
   C. Daisy Bates
   D. Augusta Savage

10. The doctor who changed the philosophy of medicine from "treatment of disease" to "maintenance of health":
    A. James Berry
    B. Florence Sabin
    C. Katherine Blodgett
    D. Mary Ellen Avery

11. A one-time New Jersey school teacher who went on to hold the mountain climbing record for the Western Hemisphere:
    A. Alexandrine Tinne
    B. Annie Smith Peck
    C. Mary Ann Shadd
    D. Carlota Matienzo

12. The first sculptor in the American colonies:
    A. Edmonia Lewis
    B. Bertha von Suttner
    C. Mrs. Voelker
    D. Patience Wright

13. She owns the WASHINGTON POST and NEWSWEEK magazine:
    A. Katherine Graham
    B. Marguerite Higgins
    C. "Dickey" Chappelle
    D. Lillian Wiggins

14. The Olympic gold medal winner who became a surgeon:
    A. Margaret Butler
    B. Cecilia Helena Payne-Gaposchkin
    C. Tenley Albright
    D. Jocelyn R. Gill

15. The author of the first dime novel:
    A. Caroline Herschel
    B. Ann S. Stephens
    C. Mary Anning
    D. Anna Edson Taylor

16. The founder of industrial medicine:
    A. Sarah Winnemucca
    B. Alice Hamilton
    C. Mary Goddard
    D. Joy Bright Hancock

17. She devised a test to check newborns immediately after birth:
    A. Virginia Apgar
    B. Ruth Cheney Streeter
    C. Sarah T. Hughes
    D. Lou Henry

18. She was Currier and Ives best known lithographer:
    A. Ellen Craft
    B. Tina Modotti
    C. Annie L. Williams
    D. Fanny Palmer

19. She founded 67 institutions on three continents. Born in Italy, she was the first American to become a saint:
    A. Mary McLeod Bethune
    B. Frances Xavier Cabrini
    C. Elizabeth Ann Seton
    D. Evelyn Dunbrow

20. The founder of a new science called sanitary engineering, which eventualy developed into ecology:
    A. Henrietta Swallow Richards
    B. Rachel Carson
    C. Janet Travell
    D. Baroness de Beausalieil

(answers, page 20)

Harriet Quimby flew the English Channel in 1912.

... Fishing

... Mining

WOMEN AT WORK

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BACKGROUND

. . .Prehistory

In the era of prehistory, most advances in society were developed by women: agriculture, building, weaving, basketry, pottery, woodworking, trading, domesticating animals. The development of pottery and basketry, allowing for the long term storage of food and water, permitted humanity to stop living the nomadic life and begin the first settled communities. From pottery, brickmaking and building evolved; small baskets developed into larger structures and became boats. The first wheels, appearing in the New Stone Age, were developed in connection with weaving and pottery.

. . .Biblical Times

Bible text shows women taking part in a wide variety of activities. Sherah, an ancestor of Joshua, built three towns: Upper Beth-horon, Lower Beth-horon, and Uzzen-Sherah (I Chronicles 7:24). When the walls of Jerusalem were destroyed in Nehemiah's time, Shallum's daughters helped rebuild the walls (Nehemiah 3:12). Throughout the books of the Old Testament, women are often seen as traders, farmers, and builders.

. . .Egypt

Ancient Egypt has been described by many researchers as the highest documented status ever attained by women. Herodotus, the Greek historian, commented on women trading in the market place, managing businesses, and taking part in all aspects of public life. This established tradition continued long after Egypt fell to the Romans. Of special interest is Alexandria, a city that seems to have had brilliant women in profusion. Hypatia, one of the best known ancient mathematicians, was from Alexandria. St. Catherine of Alexandria, whom legend notes as the most brilliant person of her day, later became a popular medieval and renaissance art subject. Via legend or historical fact, many names emerge from this ancient city.

. . .Ancient Science

Any search through the annals of ancient alchemy produces the names of many women. One of the most noted is someone called Maria the Jewess. She lived in Egypt (probably Alexandria) sometime between 100 B.C. and 300 A.D. One of the great discoverers in practical science, Maria the Jewess is credited with a number of inventions, including a still for the distillation of sea water. She is described as "highly inventive and deeply interested in chemical experiments and the instruments that made them effective and precise. She elaborated all the essential appliance on which alchemy, or chemistry, was to carry on for near two millennia . . ." (Lindsay). Describing her construction methods in great detail, she told how to make copper tubes from sheet metal. From the fragments of text available, her greatest interests seem to have been in the alloys of copper and lead. When Marie Curie worked in her Paris laboratory nearly two thousand years later, she was using essentially the same equipment as was developed by Maria the Jewess.

. . .Non-Industrial Societies

Building stayed in the hands of women in many cultures. The tipi, earth lodge, and pueblo of the American Indians were built by women — as were the yurts of the nomads of Central Asia and the tents of the Bedouin. The style of the desert tents probably had the most far-reaching influence. The plain, stark exterior with richly woven textiles covering the entire interior is a strongly felt design influence in Islamic architecture. The same style reached Spain via the Moors. ●

Carpenter

EUROPEANS

...Hrosvitha (? 935-1000), a Benedictine nun, was the first medieval dramatist.

...It was under the rule of **Matilda** Countess of Tuscany (1046-1115) that the guilds began to be established and Florence started its rise to power.

... **Anna Commena** (1083-? 1148), a Byzantine historian, gave us the writings from which we draw much of our information on the Crusades.

... **St. Hildegard** (1098-1179), a Benedictine abbess and one of the few scientists of the middle ages, anticipated the theories of gravity several centuries in advance of Newton. She also thought the world was round (Mozans).

...Herrade de Landsburg (end of the 12th century) wrote and illustrated one of the first encyclopedias. Her drawings were the forerunners of German graphic art.

...Philippa of Hainaut brought the wool industry to England in 1335. Wool became England's largest export for centuries.

...Margery Kemp (? 1375-? 1438), an English woman, wrote the first autobiography.

...Juliana Berners (or Barnes) (1300's), an English nun, was the medieval expert on hawking, hunting, and fishing.

...Kenau Hasselaer (1526-1554), a Dutch shipwright, traveled throughout Europe selling her ships and buying materials.

...Judith Lalement owned a watchmaking factory in Autun in 1660.

...Elizabeth Mallett began publishing the first daily newspaper in England in 1702.

...Jeanne Genevieve Garnerin, the first woman pilot, flew solo in her own balloon in 1799.

...CHRISTINE de PISAN

Christine de Pisan, Italian born resident of the French court, was one of the first people to earn her living via the pen. Beginning in 1389, she wrote on wide ranging topics: international law, courtly romance, military strategy, and the history of women. "She addressed the questions of international relations long before Erasmus. In studying military strategy to see where the destructive potentials of war could be minimized, she anticipated much later approaches." (Boulding). Advocating education for all children, she maintained that if girls were taught, they would "understand the subtleties of all arts and sciences" as well as boys. With her family raised, Christine de Pisan retired to a convent. She emerged from seclusion only once more in her lifetime — in 1429, she wrote a poem to the victories of Joan of Arc over the English.

Christine de Pisan.
LA CITE DES DAMES

1300's blacksmith

...BUILDERS

In THE THIRTEENTH: Greatest of Centuries, James J. Walsh notes that there are traditions that the designs for some cathedrals, and certainly portions of many of them were built by women. Much of the statuary on Strassburg Cathedral is credited to Sabina von Steinbach. The statue of the Apostle John holds a scroll inscribed in Latin, "The Grace of God be with thee, O Sabina, Whose hands from this hard stone have formed my image." Edgcumbe Staley in THE DOGAESSAS OF VENICE points out that women build many of the bridges in Venice.

EARLY AMERICA

■ Erasmus, while visiting 1500's London, observed the large number of women actively engaged in commerce and industry. As Europeans began settling North America, the skills came along, too — in fact, the colonial woman set herself up in business at approximately the same moment she unpacked her bags. Records show women working as silversmiths, pewterers, butchers, brewers, gunsmiths, blacksmiths, printers, owners of mines and forges, and just about every other occupation known at that time.

...**Margaret Hadenbrook Philipse**, a colonial merchant and shipowner, operated the first shipping fleet traveling between North America and Europe.

...**Mary Alexander**, working out of New Jersey and New York, imported so extensively it was said a ship never docked without consignment for her.

...**Four Dutch women** were the leading importers to the colony of New Amsterdam.

...**Temperance Grant** of Rhode Island took over the family shipping business and operated it successfully for twenty-two years. Her boats traded up and down the Atlantic coast. In 1665, Anne Hack had a similar business in Virginia.

...In 1754, **Elizabeth Russell** advertised herself as a coachmaker.

...In 1737, **twenty-two Danish women** were brought to Portsmouth settlement to saw lumber and make potash.

...**Sarah (or Tabitha) Babbitt** of the Harvard Shaker community invented the circular saw and cut nails.

...**Elizabeth Lucas Pinckney** (? 1722-1893), a South Carolina plantation manager, developed a method for growing indigo; which, until the American Revolution, was the colonies' largest export.

...A French traveler wrote of **Mrs. Erskine** of Ringwood, New Jersey, who owned an iron forge that was very profitable to her.

...**Rebecca Lukens** (1794-1854) took over the Brandywine Iron Works; and, among other things, made the boilermakers for Boston, Baltimore, New York, Albany, and New Orleans.

...**Grace Reynolds** and **Elizabeth Hatkinson** both owned grist mills in New Jersey.

...**Dona Patricia de Leon** (1795-1849) founded Victoria, Texas.

...**Deborah Moody** (d. 1659) founded a new settlement in what is now Brooklyn, New York. She was also one of the first town planners.

...Women's names appear in the incorporation of such towns as Princeton and Newton, N.J.

...**Duchess Quamino**, a black woman from Newport, Rhode Island, ran a successful catering business.

...**Anne Hume** of West Jersey advertised in a Philadelphia newspaper in 1764 that she had over 160 items to sell in her store — from beans to jewelry.

...**Elizabeth Bass** of Burlington, New Jersey, advertised her bookstore in 1726.

...In 1763, **Elizabeth Hoffmire** of New Jersey decided to sell her 300 acres, including her grist mill, barn, and house.

...**Maria Van Cortlandt Van Rensselar** (1645-1688) left the richest land patent in the Dutch colonies (24 square miles near Albany).

...Most Frequent Jobs

The occupation most prevalent among colonial women? Tavern or inn keeper. Colonial inns were not only places to eat and stay overnight, they were a popular meeting place to find out about news in the community — politics, trade, local business. Ann Balding opened the first tavern in New Brunswick, New Jersey. The town officers often met there and in February, 1735, passed the first town paving ordinance.

A second business common to women was operating a ferry. Prior to the American Revolution, Widow Johnson had a ferry at Perth Amboy and Widow Austin had one that crossed the Delaware. All along the Atlantic coast women were involved in the ferry business — Maryland alone had at least a dozen.

...The First Colonial Patent

The name of Sybilla Masters (d. 1720) first appears in New Jersey records in 1692 when she appeared as a court witness. In 1712, probably while living in Pennsylvania, she went to London to secure a patent on her invention — the first patent issued to any citizen of the colonies. She invented an instrument to pulverize corn into meal by using a process of stamping rather than grinding. The power source could be either water wheel or horse.

...The First Colonial Sculptor

Patience Lovell Wright (1725-1787), the first American to have a work placed in London's Westminster Abbey (a statue of William Pitt), was also the first American sculptor. The Patience Wright House in Bordentown, New Jersey, has a plaque which also lists her as a spy for the colonies during the American Revolution.

...New Towns

In 1689, Elizabeth Haddon acquired 400 acres in New Jersey, and started the town of Haddonfield. Her marriage to John Estaugh was remembered by Longfellow in his poem "The Theologian's Tale."

"In 1771, Elizabeth Clark Bodly purchased 213 acres of wilderness for 260 pounds sterling and caused this fine town (Port Elizabeth) to be laid out." (Sherr)

...Abolitionists

From 1853 to 1861, at Engleswood School in Perth Amboy, New Jersey, abolitionists Angelina and Sarah Grimke were among the teachers. The school served as a stop on the Underground Railroad, and was often visited by the leading abolitionists of the day, including William Lloyd Garrison.

Maria W. Stewart (1803-1879), a writer and lecturer often published in William Lloyd Garrison's newspaper THE LIBERATOR, was a northern black woman who became involved in the 1830's anti-slavery movement. She was one of the earliest women to speak in public.

Frances Ellen Watkins Harper (1825-1911), another author often published by Garrison, was the best known black poet since Phillis Wheatley. Traveling throughout the northern states lecturing for the Anti-Slavery Society in the years prior to the Civil War, she lectured in New Jersey on several occasions. ●

INDUSTRIALIZATION

■ The Industrial Revolution had already celebrated its 50th birthday in England before it rolled ashore on the North American continent. In the United States, as in England, textiles led the way. Francis Lowell, in 1814, organized production into a continuous mechanized process, and all under one roof. The Lowell Textile Mills of Massachusetts came into being and industrialization began to replace the home manufacture system.

Women were the mainstay of the early mills. There were two reasons for this: first, all aspects of textile production (growing, harvesting, spinning, dying, weaving) had been the work of women. Secondly, there was very real opposition to any activity that would remove men from the farm. By 1831, figures show 39,927 women in textile manufacture as versus 18,539 men. Less than seventy-five years later, in 1905, women textile employees numbered 298,910; men 273,822; and children 65,456. In addition, in 1905, the clothing industry was two-thirds women and shoemaking one-third.

Whether women worked in a factory or not, industrialization had a pronounced effect on their lives. In pre-industrial society, women's housework was production — highly skilled and varied work. The removal of production from home to factory and the monopolization of many skills by professions and crafts, drastically reduced the scope of the work of women in the home. Women, who had been the producers, now became the consumers.

...PATERSON, NEW JERSEY

New Jersey was the nation's earliest selected industrial state. In 1791, Alexander Hamilton founded the Society for Establishing Useful Manufacturers, choosing the Great Falls of the Passaic River for a new industrial city — Paterson. The first factory opened in 1794, printing calico goods. A busy mill town by 1830, the majority of textile employees in Paterson were women and children, working fourteen to sixteen hour days. The first strike in the United States was by these textile mill employees in 1828. Continuing as a focal point of labor discontent well into this century, Paterson textile strikes made their share of headlines. One of the strike leaders in the earlier part of this century was Elizabeth Gurley Flynn.

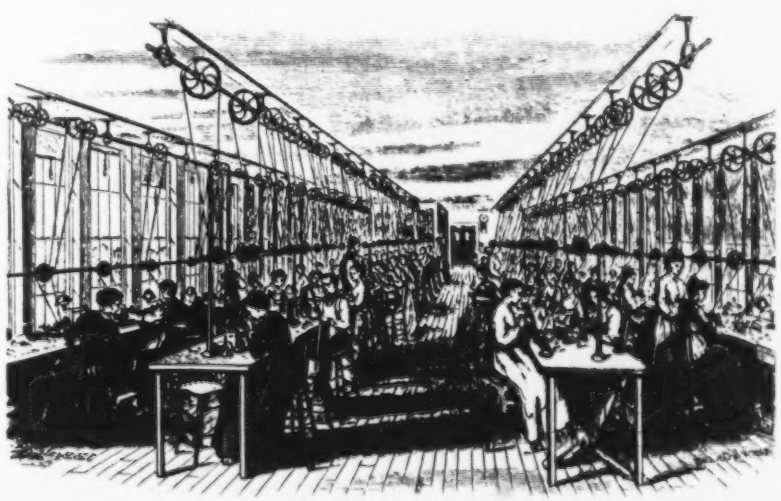
...THE CHILDREN'S CRUSADE

With industrialization and poor working conditions came labor discontent and nearly uncountable numbers of strikes. New leaders emerged from the chaos. One of the best known: Mary Harris Jones.

Mother Jones (1830-1930) spent her life moving from one industrial area to another. Where there was a strike, she organized it; where there was no strike, she held educational meetings. While her best known work was as organizer for the United Mine Workers, her interests were actually much more varied: child labor, the plight of Mexican revolutionaries (a case she took directly to the White House), any labor union, and a dozen other issues of the day.

To dramatize the evils of child labor, in 1903 she led a caravan of striking children from the textile mills of Kensington, Pennsylvania, to the home of President Theodore Roosevelt in Oyster Bay, New York — a distance of 125 miles. On the twenty-two day march she passed through Pennsylvania, New Jersey, and New York. While the caravan crossed New Jersey, she spoke to a rally of 5,000 in Trenton's Monument Park and to a class at Princeton University. For two nights the caravan camped at Highland Park in a grove belonging to a brewery. Continuing across the state, she stopped at Metuchen, Rahway, Elizabeth, Newark, Paterson, Passaic, and West Hoboken. According to one story, near the end of the cross-New Jersey journey, a hotel manager offered the group free hotel accommodations. By that evening Mother Jones had the hotel employees out on strike over poor working conditions.

Active in labor work until the end of her life, at 85 years old she was leading the New York City streetcar and garment workers strikes. For her one hundredth birthday tributes poured in from the entire nation, even from her old foe John D. Rockefeller. She took $1000 of her gift money and gave it to a group of miners trying to oust John L. Lewis from the presidency of the United Mine Workers. ●



TURN OF THE CENTURY

■ "Give me your tired, your poor, your huddled masses yearning to breathe free . . .," wrote Emma Lazarus for the Statue of Liberty in 1886. Millions showed up. As immigrants arrived at Ellis Island, Clara Barton opened up the supply lines for the Spanish-American War, the cities ached with slums, and Mother Jones led her crusade across New Jersey — it was all wrapped up and called the Gilded Age. By 1900, five million women were earning wages; they made up twenty percent of the labor force. Turning from one century to another found life lived at many levels.

. . .**Nellie Bly**, a reporter for the *NEW YORK WORLD*, left the docks of Jersey City in mid-November, 1889, to try to beat the record of Jules Verne's fictional Phileas Fogg of *AROUND THE WORLD IN 80 DAYS*. Nellie Bly made it around in 72.

. . .**Sophie Loeb**, on the staff of the *NEW YORK EVENING WORLD*, campaigned for model tenements and became the first president of the Child Welfare Committee of America.

. . .**Alice Lakey** of Cranford, New Jersey, started a campaign to force Congress to pass the Pure Food and Drug Act of 1906.

. . .**Madame C. J. Walker** became the first black millionaire in the U.S.

. . . Nutley, New Jersey's best known resident was **Annie Oakley**. At ninety feet she could hit the thin edge of a playing card, then hit the card five or six times before it hit the ground.

. . .**Gertrude Bell**, an English explorer, archaeologist, and government official developed the maps later used by Lawrence of Arabia on his desert campaigns.

. . .**Nina Agadjanova-Shutko**, a Russian, wrote the script for the film *Potemkin*.

. . .**Katherine Lee Bates** wrote "America the Beautiful."

. . .**Florence Marion Howe Hall** was the President of the New Jersey Suffrage Association. Her mother, Julia Ward Howe, wrote "Battle Hymn of the Republic."

. . .**Adrienne Bollard**, a Frenchwoman, flew over the Andes in 1919 in a plane with one 80-horsepower engine. Time: Seven hours.

. . .The Highest Climber

In the late 1880's Annie Smith Peck (1850-1935), a classical scholar, worked at the Montclair, New Jersey, high school. Later, while studying in Europe, she found the calling that would make her world famous: mountain climbing.

In 1895, she climbed the Matterhorn; in 1897, Popocatepetl and Orizaba in Mexico. There were many other ascents until her 1908 climb of Mount Huascaran in Peru. The mountain, estimated at 24,000 feet, would have been the highest any climber had ever reached. The measurement of Huascaran was later challenged and found to be only 21,812 feet. The challenger on the height was Fanny Bullock Workman, who had climbed to over 23,000 in the Himalayas. Peck's record did stand, however, as the highest point reached in the Western Hemisphere. Workman's record was not broken until the 1930's. Annie Smith Peck continued climbing for the remainder of her life — at age 61 she scaled a 21,000 foot peak in Peru.

Throughout her mountain climbing years she supported herself via lectures and writing books. Never one to miss an opportunity, especially if it involved heights, in 1929 and 1930 she made an extensive tour of South America in a push for commercial aviation. The last of her several books, written in 1932, was called *FLYING OVER SOUTH AMERICA*.

. . .New Jersey's First Settlement House

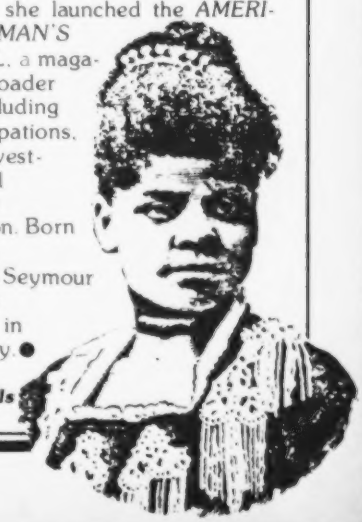
With 10 dollars and three pieces of furniture, on May 14, 1894, Cornelia Bradford opened Whittier House at 174 Grand Street in Jersey City. It was the first settlement house in the state. Having spent time studying with Jane Addams at Hull House in Chicago, Cornelia Bradford began many new programs to aid the poor of Jersey City: the town's first kindergarten in 1894, the Penny Provident Bank, a legal aid society (the second in the United States), a dental dispensary, the first playground in Jersey City, and a consumers' league.

. . .Housing Reform

Helen Hartley Jenkins (1860-1934), a leader in the tenement house reform movement, began purchasing and remodeling old buildings in the outlying areas of New York City. Her idea: take the pressure off the city slums. She concentrated on one and two-family dwellings rather than large apartment houses. The school of nursing at Memorial Hospital, Morristown, New Jersey, is named for her. Helen Hartley Jenkins was a resident of West Orange Township and New York City.

. . .Opening a New Job Market

Developing something of a revolution in her own time, Mary Foot Seymour (1846-1893) opened an entire new field of work for women. In the last century, when women were expected to be financially supported by their fathers or husbands, the Civil War, with its death toll in the thousands, left many large families with no means of support. Teaching was open to unmarried women only and career choices for the average married woman were pretty well confined to sweatshops and textile mills. Seeing the development of the typewriter as a new field of employment, in 1879, she established her first School of Stenography in New York City. Her interest was in preparing women for jobs in the business world and on a massive scale. By 1889, when her school was well established she began a magazine, *BUSINESS WOMAN'S JOURNAL*. Each issue contained an article on a successful businesswoman, self-help for those in business, and news of organizations. In 1892, she launched the *AMERICAN WOMAN'S JOURNAL*, a magazine of broader scope, including new occupations, reliable investments and insurance information. Born in Illinois, Mary Foot Seymour lived most of her life in New Jersey. ●



Ida B. Wells

THE DEPRESSION

■ The Empire State Building went up, the George Washington Bridge went over, and Wall Street went down. The economy was in a coma: dust bowls, breadlines, and unemployment were the order of the decade. It's one of those times that took place in black-and-white; somehow the mind's eye cannot imagine the Depression taking place in color. There were wars and rumors of wars: Germany was marching in Europe, Italy in Africa, and Japan in the Pacific.

It was also a time when:

...**Dorothea Lange**, one of the best documentary photographers of all time, was recording the era in vivid detail. (Dorothea Lange was also born and raised in Hoboken, New Jersey.)

...**Bessie Smith** sang the blues as they had not been heard before and have not been heard since.

...**Babe Didrikson**, the one-woman team, won three medals at the 1932 Olympics, and tried to find a sport in which she did not excell.

...**Frances Perkins** was appointed Secretary of Labor.

...A bank in Richmond, Virginia, started by **Maggie Walker**, the daughter of slaves, was able to loan that city enough money to keep it from bankruptcy.

...**Winifred Brown** won the King's Cup Race, Britain's most famous air competition. A short while later when the same race was run for Americans, Phoebe Omlie won.

...**Maryse Bastie** of France established a new endurance record by flying for 37 hours, 50 minutes.

...Harvard University granted an honorary doctorate to **Marian Anderson**.

...**Jane Addams** won the Nobel Prize for Peace.

...**Pearl Buck** won the Nobel Prize for Literature.

...**Irene and Frederic Joliot-Curie** won the Nobel Prize for their discovery of artificial radioactivity, giving the Curie family a total of five Nobel Science prizes.

...**Lise Meitner** discovered the theory of nuclear fission.

...**Eleanor Roosevelt** went on inspections of coal mines.

...**Zora Neale Hurston**, dedicated to the preservation of black culture, traveled throughout the South collecting stories.

...A new magazine called LIFE featured on its first cover a photograph by **Margaret Bourke-White**.

...**Freda Kirchwey**, editor and publisher of THE NATION, wrote on world affairs.

...**Anne O'Hare McCormick** won the Pulitzer Price for her work at *The New York Times*.

...**Dorothy Thompson**, "the angriest and most eloquent enemy that Hitler had in the world's press," was the first foreign correspondent thrown out of Germany (1934).

...War correspondent **Martha Gellhorn** was on hand for the Spanish Civil War, the German invasion of Czechoslovakia, and anyplace else something was happening.

...**Margaret Mitchell** won the Pulitzer Prize for her novel in which her main female character owns a lumber yard.

...Nancy Drew books were born (first written by Edward Stratemeyer, later by his daughter **Harriet Adams** of East Orange).

...**Crystal Bird Fauset** became the first black woman elected to a state legislature, and later served as an advisor to FDR.

...**Katherine Hepburn** and the movies found one another.

For women, the Depression was a paradox. Over half of the 48 states had laws against two incomes in one household and the overall image of women was indeed weak. Yet, many of the strongest, most exceptional women of this century emerged in this period.

"All of us who lived through the Depression remember the special contribution of this gifted artist. The magic of her camera turned mere statistics into compelling truth. Without retouching our blemishes, she showed the strength and gallantry of the American people under severe adversity."

Lyndon Johnson, on the opening of the Dorothea Lange exhibit at the Museum of Modern Art.

...Help for the Blind

Dorothy Eustis (1886-1946), the founder of the "Seeing Eye" dog, in 1921 established an experimental breeding kennel in Switzerland where she eventually developed a strain of German shepherd of exceptional intelligence and alertness. In 1930, she moved to Morristown, New Jersey, and in 1932 purchased a fifty-six acre estate in Whippany that became the permanent location for her school to train guide dogs. Devoting the rest of her life and most of her personal fortune to research, by the time of her death over thirteen hundred dogs had been supplied to blind people.

The founder and executive director of the Eye-Bank for Sight Restoration in New York City, Aida de Acosta Breckinridge (1884-1962), was born in Eberon, New Jersey.

Winifred Holt (1870-1945) a portrait sculptor, opened the Lighthouse for the Blind in New York City in 1923 — an organization that eventually spread to thirty-four other countries. ●

Ruth Nichols, who on March 6, 1931, set a 28,743 altitude record at the Jersey City Airport.

...She Said Her Favorite Job Was as a Guidance Counselor

■ As a teenager Margaret Hanrahan would swipe bed sheets from home, cut her New Jersey high school classes, and go to Teterboro Airport to patch wing fabric on airplanes in exchange for flying lessons. It was 1935. A pilot from nearby Rye, New York, who kept her planes at Teterboro, gave her encouragement and dozens of flying tips. Margaret Hanrahan became a Women's Airforce Service Pilot (WASP) during World War II. The pilot, Amelia Earhart, then working as a guidance counselor at Purdue University, had already flown solo across more oceans than anyone else in the world.

Amelia Earhart, born in 1897, was at one time or another a nurse, premedical student, teacher, poet, photographer, airline vice-president, and pilot. In a 1919 auto mechanics course she discovered a love for engines, a love she quickly transferred to airplanes. Working as everything from a truck driver for a sand and gravel company to a file clerk, she earned enough money for flying lessons from Neta Snook, one of the first women flyers. By 1922, she had set a 14,000 foot altitude record in an open cockpit, three-cylinder plane.

On a 1928 flight sponsored by Amy Phipps Guest, Amelia Earhart was the first woman to fly across the Atlantic, but she was a passenger and felt a false hero for the fame derived. In May, 1932, she took her own Lockheed Vega single-engine plane from Teterboro to Newfoundland. From Newfoundland she became the second person to fly solo across the Atlantic Ocean and the first person to fly across twice. (This plane, once on exhibit at the Franklin Institute in Philadelphia, has now been moved to the Smithsonian.) With another Vega she was the first to fly solo from Hawaii to the U.S. mainland (this flight marked the first solo over the Pacific Ocean, the longest over-water solo flight to that date, the first use of the radio-telephone for long distance flight, and made Earhart the first pilot to have soloed both Atlantic and Pacific). On invitation from the Mexican government she was the first to fly solo from Los Angeles to Mexico City. On May 8, 1935, she lifted off from a dried lake bed outside Mexico City and became the first to fly from Mexico City to Newark (marking the first solo flight of the Gulf of Mexico). The near hysterical crowd at Newark probably still holds the airport record for most people contained in least space. Before her flying career was over she had flown to every continent execpt Antarctica. A check of old flight records indicates she was probably the first pilot to have accomplished that feat.

The years between the long-range ocean flights were filled with other record setters: non-stop solo transcontinental records (Los Angeles to Newark) in 1932 and 1933, test pilot for the autogiro (forerunner of the helicopter) in which she set the still standing altitude record of 18,415 feet, transcontinental flight in the autogiro, and a dozen other records.

Amelia Earhart had a second major interest: establishing careers for women in aviation. Her converts were numerous and impressive — she took Eleanor Roosevelt on her first flight over Washington and Eleanor Roosevelt became one of the strongest supporters of women in the air. Earhart went on a two-year lobbying effort at the White House to get the government to hire women pilots. Her first success was Louise Thaden, hired by the Bureau of Air Commerce. With her long expressed interest in careers, in 1935 she joined the faculty of Purdue University as vocational counselor for women (a position later held by Lillian Gilbreth).

With seventeen years piloting experience to her credit, she decided to try for aviation's Everest — 29,000 miles around the world. This was to be the first flight around the world at the equator and was to establish the feasibility of land planes for long-range Pacific Ocean flight. Her plane, a Lockheed Electra given her by Purdue University, was one of the largest of its day with a range of 4200 to 4500 miles. World flight in 1937 could be kindly described as primitive — most runways were dirt or grass. One field where Earhart landed had a large stone fence all around it — to keep the wild pigs out. Having finished 22,000 miles of the trip, on July 2 she and her navigator lifted off from Lae, New Guinea, for a 2600 mile jump to Howland Island in the mid-Pacific. They

Amelia Earhart with her Avian Moth, a plane she purchased from Lady Mary Heath. Lady Heath used the plane when she was the first to fly solo from Capetown, South Africa, to London. Earhart used the plane in 1928 when she was the first woman to make a transcontinental flight (Atlantic to Pacific and back again).

never arrived at Howland. The largest sea search in history produced not so much as an oil slick.

The last flight of Amelia Earhart became one of the most speculated on events of of the last half century. There are as many theories as people: she crashed in the Pacific, she was shot down, she is still alive, and a dozen others. The story that she was photographing Japan's Pacific military installations in the years just prior to Pearl Harbor has its source with a number of people from the Pacific Islands who say there was an American woman pilot being held as a spy in the years just prior to World War II. No hard evidence has ever emerged; she is officially listed as "lost at sea."

Not only for her record breaking flights, but because she did more than any other single person to help the new aviation industry gain public acceptance, she has been honored on a world-wide basis. Burry Port, Wales, erected an eighteen foot statue to her; the Miami Municipal Airport was renamed Amelia Earhart Field and when the new Miami International Airport was built, a large bronze plaque was placed by the main entrance; a memorial is located near Diamond Head in Hawaii; a dam in Massachusetts, a lighthouse on Howland Island, a U.S. Air Force Hotel in Germany are all named for her; there is the Earhart Road at Oakland International Airport; and at least two dozen American cities have monuments, plaques, or markers. Add to this schools, American Legion Posts, flowers, stamps, an exhibit at the Smithsonian, a building at Purdue, and several dozen other memorials. Few have been so widely honored.

...Amelia Earhart

"...If women are eventually found in locomotive cabs, building bridges, or chasing bandits as normal occupations, it will be no surprise to me." (1932)

"I have always harbored a very special pet project, a room marked 'Tinkering: For Girls Only.' The plan is to endow a catch-as-catch-can machine-shop, where girls may tinker to their hearts content with motors, lathes, jigsaws...Where they may sprawl on their back, peering up into the innards of engines...Where they can make things and have the fun of finding out how things are made." (1937)

Oakland, California, January 12, 1935. The first solo flight of the Pacific.

...Navigating with a Compass

"She took the crowd by surprise. They had been scanning the skies for a lone plane searching for its landing field. But in she came, straight as an arrow, spurning a preliminary circle of the field, gliding down to a perfect landing in the center of the big Oakland Airport.

"As the plane swung and taxied toward the hangers there came a roar from 10,000 throats, a cheer louder than any heard before at the field where many distance flights have been concluded. The crowd broke from the police barriers and rushed toward Miss Earhart's plane — a dangerous rush as the propeller was still spinning.

"But the police pushed the crowd back — men, women, and children — while innumerable automobile horns tooted a clamor of greeting from the road circling the field.

"The propeller came to a stop as the engine died, and the isinglass cover of the cockpit opened. Then the first woman — or any person, for that matter — to fly the Pacific alone thrust her tousled head into view."

The New York Times, January 13, 1935 (on completing a 2,400 mile, 18¼ hour flight from Hawaii to the U.S. mainland).

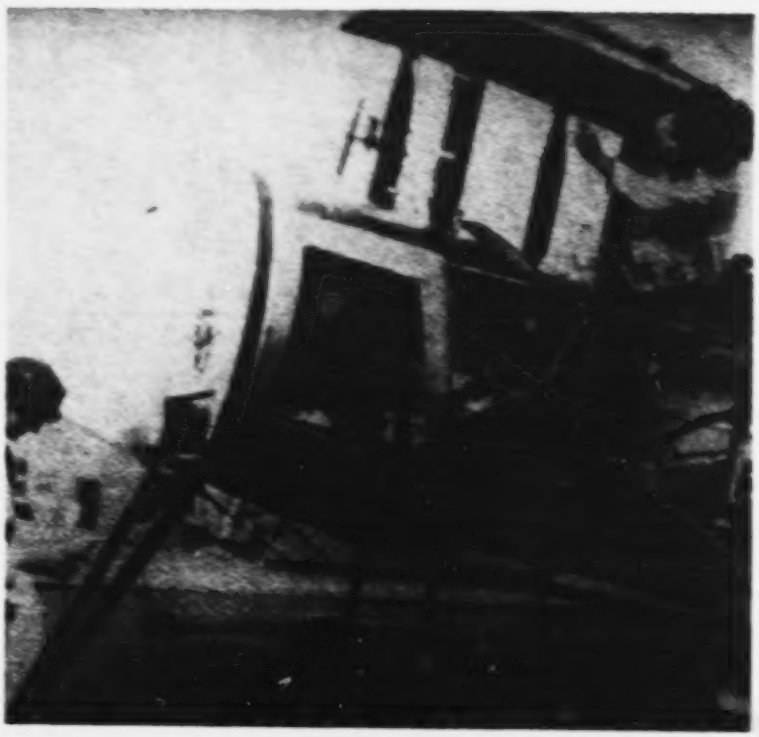
Jacqueline Cochran, head of World War II WASP's, represents one of aviation's great rags-to-riches stories. Born in 1910, she actually does not know where or to whom she was born. By age 8, she was working a twelve hour day in a Georgia cotton mill. A local teacher taught her to read, and she eventually became a practical nurse. Somewhere along the line she decided that in order to do anything for herself or anyone else she had to get away. Cochran eventually became head of her own very successful cosmetics firm. In the meantime, she took up flying.

In 1938, flying Alexander de Seversky's P-35, Jacqueline Cochran was the only woman to enter the Bendix Race (Los Angeles to Cleveland), the most honored of United States air races. She finished first (an hour ahead of second place), got out of her plane, held a press conference, refueled, and flew on to Teterboro, New Jersey, to set a new women's cross-country record. In New Jersey, she boarded a commercial airliner, flew back to Cleveland, and arrived in time for the party for the Bendix winner.

Not only did Jacqueline Cochran emerge as winner of the Bendix Race, she demonstrated a new type of aircraft. "The P-35 developed into the P-47 Thunderbolt fighter, the most effective long-range pursuit during World War II. Seversky would demonstrate his gratitude to Jacqueline Cochran six years later, when at an important moment, he would affiliate her with his entire production of P-47 Thunderbolts." (Keil)

Anne Morrow Lindbergh worked as navigator, radio-operator, and co-pilot on Charles Lindbergh's survey flights in the 1930's. In 1931, they traveled across the North Pacific to China (on which she wrote the book NORTH TO THE ORIENT); in 1933, across the Atlantic and into the Soviet Union; in 1937, across North Africa and into Asia. Until 1935, the Lindberghs lived in New Jersey. ●

WORLD WAR II



Airplane mechanics, World War I.

Shipbuilders in the Submarine Boat Corporation Plant, Newark, New Jersey.

■ The American Civil War brought women into government office jobs for the first time. World War I found over 100,000 women in areas of heavy industry previously closed to them: working with high explosives, copper smelting, iron refining, and chemicals.

World War II altered women's place in the labor market more radically than any other event of this century. It took Japan 110 minutes to wipe out the Pacific fleet at Pearl Harbor. The United States found itself at war in Asia, Europe, Africa, the Atlantic, and the Pacific. Women, driven out of the labor force during the Depression, were now told to get a job and get it fast. The previous bans on women working in heavy industry fell faster than the bombs. State laws against married woman earning a wage vanished overnight.

THE LADIES HOME JOURNAL featured pilots and mechanics on their covers. The government produced films urging women into heavy industry. One broadcaster asked, "Why do we need women workers?" He went on to answer his own question, "Because you can't build ships, planes, and guns without them." Hollywood fell into line with such films as "Swing Shift Maisie" (1943) in which the main female character is an aircraft worker; Lucille Ball in "Meet the People" (1944) worked in a defense plant; Claudette Colbert was a welder in "Since You Went Away" (1944). One thing was for sure: Times Had Changed.

By 1943, four million women were employed in munitions work alone. The female labor force swelled to fifteen million and women could be found not only in traditional jobs, but also working in coal mines, automobile factories, and aerial photography; operating mechanical cranes, swinging sledge hammers, cleaning anti-aircraft guns, switching railroads, dispatching airplanes, forecasting weather, and just about everywhere else. In 1941, seven airplane factories showed a total of 143 women employed. 18 months later these same seven plants showed over 65,000 women on the payroll. By war's end, forty percent of all aircraft industry workers were women. Over 29,000 joined the Women's Land Army, to

replace farmers shipped overseas. Three hundred thousand enlisted in military service, including 1,000 Women's Airforce Service Pilots (WASP's) who flew over 60 million miles for the Army Airforce. The Women's Army Corps (WACS) had 150,000 members, including over 4,000 black women. WACS worked in everything from machine maintenance, to truck drivers, radio operators, and clerks. Many WAC mechanics were sent overseas, especially to North Africa.

In the United States, black women, older women, and married women benefited most. Black women found jobs in industry for the first time, and by war's end 18 percent of employed black women were in industrial work. The war radically changed the composition of the female labor force: 75 percent of the new workers were over 35 years old, 60 percent were married, and the majority of these had children of school age or younger.

What of the other Allied countries during World War II? Great Britain and Russia represent the countries where the most women were pressed into war service. In London alone, during any given air raid, 40,000 women worked in the bombardment: as firefighters, ambulance drivers, or collecting the wounded and injured, and rescuing people from collapsed buildings. For England there was no such thing as not working in the war effort. Even the royal family was trained — the Princesses Elizabeth and Margaret both chose to become automobile mechanics.

The only Allied country to use women in combat was the Soviet Union. During a 1938 visit, Charles Lindbergh noted the large number of women being trained by the Soviet Airforce. During the war there was at least one all female air fighter unit, with most other fighter groups mixed. A number of women were squadron commanders. Two of the better known women from this period: Lydia Litvak (1921-1943), the highest scoring woman fighter pilot, and Major Anna Nikulina, who was among those who captured the Reich's Chancellery in Berlin.

...In June, 1941, **Margaret Biddle**, in her book *THE WOMEN OF ENGLAND*, wrote: "In one airplane factory there was a woman director who had herself designed the plane called 'Sparrowhawk' and who has for several years taken a very active part in the management of the factory itself."

...Canadian based **Elsie Gregory MacGill**, an aeronautical engineer, designed, built, and tested her own airplanes. Internationally known for her work on engineering designs of both fighter and transport aircraft, during World War II she was in charge of engineering for the Canadian production of the Hawker Hurricane fighter aircraft for England and the Curtis Helldriver for the U.S. Navy.

...**Chien Shiung Wu**, **Leona M. Libby**, and **Maria Goeppert-Mayer** were among the members of the Manhattan Project.

...**Maria Telkes** developed a solar still for life rafts and a number of other solar devices for the U.S. Navy.

...**Grace Murray Hopper** is sometimes called the mother of electronic computer automatic programming. During World War II she developed methods to program the Mark I computer, forerunner of today's giants. ●

Airplane mechanics. World War II.

Automobile mechanics. World War II.

NOTABLE PEOPLE

...A Family

Alice Stone Blackwell (1857-1950), was well known in her lifetime as a humanitarian and radical thinker. Her mother, Lucy Stone, was the first Massachusetts woman to earn a college degree and was an early suffrage leader. Her father, Henry Browne Blackwell, was the brother of Elizabeth Blackwell, the first trained woman doctor of modern times, and Emily Blackwell, also a physician. Henry Blackwell's brother, Samuel, was married to Antoinette Louisa Brown Blackwell, the first woman ordained as a minister in the United States. At one time or another, everyone in this family lived in New Jersey — Somerville, Orange, Newark, or Jersey City.

...Currier and Ives Lithographer

Trained in lithography and drafting in her native England, Fanny Palmer (1812-1876) introduced many new techniques to American printers. As one of the best American lithographers, she created her own drawings directly on stone. Beginning in 1849, she became the most prolific artist with the firm of Currier and Ives, producing about two hundred pieces of art for that company. She was also one of the rare lithographers who sometimes signed her work — F. F. Palmer appears at the bottom of a number of Currier and Ives prints. Two of her earliest and best known works are two views of Manhattan Island, one from Weehawken, New Jersey, the other from Brooklyn Heights. Among her other works: "American Farm Scenes" (1853), "The Lightning Express Train, Leaving the Junction" (1863), "American Express Train" (1864), and "The Champions of the Mississippi, a Race for the Buckhorns"(1866).

...Homesteading Today

Helen Knothe Nearing was born and raised in surburban New Jersey. She travelled throughout Europe in the 1920's, studying the violin. In 1932, she and Scott Nearing moved to New England to become totally self-sufficient. Says Helen Nearing,

Hattie McDaniel, head of the Hollywood Voluntary Service Corps during World War II.

"From being a trained violinist I turned to stonemasonry and have... done the stonework on more than a dozen buildings." Helen and Scott Nearing have written a number of books and today are considered the leaders in the homesteading movement in the United States.

...Combined Talents I

Theatre manager, producer, playwright — Laura Keene (1820-1873) was a one woman theatrical experience. After designing, building, and painting her own scenery, she made the costumes, directed the publicity, and wrote or adapted the scripts. She also built and ran several theatres, and in her productions she played all of the female roles.

She set high standards for stagecraft. The matinee as a regular feature, the long run for a particular play (a development that helped make New York City America's theatre capital) were initiated by Laura Keene. Her most famous and successful production, which she produced and starred in, was *OUR AMERICAN COUSIN*. In New York this play scored the longest run to that date.

Laura Keene will forever be remembered as a footnote in American history, for it was her production of *OUR AMERICAN COUSIN* being acted at Fords Theatre the night Abraham Lincoln was shot, and it was she who identified John Wilks Booth.

She died at her home in Montclair, New Jersey, in 1873.

...Combined Talents II

Wanda Jablonski was a reporter in the late 1940's when she realized that the Middle Eastern countries, with their vast oil reserves, would one day be calling the economic shots for the world. She began making lengthy visits into the Arab world, and the chieftains she met 25 years ago are OPEC ministers today. The OPEC ministers remember that for years she was the only one with an interest in their future. Combining her interest in their oil, journalism, and the Middle East, in 1961 she founded the *PETROLEUM INTELLIGENCE WEEKLY*. The newspaper continues to this day as the finest periodical on oil analysis in the world.

...Inventions

Phebe Hanaford, a resident of Jersey City, wrote a full chapter on inventors in her book *DAUGHTERS OF AMERICA* (1882). Among those included: "One of the earliest mowing-machines was perfected by a lady of my acquaintance, now over eighty years of age, who aided her husband in bringing that and a clover-cleaner to perfection. This was a New Jersey woman. Still another New Jersey woman is now living, who invented the attachment to the mowing-machine, whereby the knives are thrown out of gear whenever the driver leaves his seat, thus lessening the liability to accident."

...Patents Issued to Women

Prior to 1850, 32 patents issued, one for a sheet iron shovel, another to Sarah P. Mather for a "submarine telescope and lamp."

1850 to 1859, 23 patents issued, including a door lock and a fountain pen.

1860 to 1869, 267 patents issued, including improvement in reaping and mowing machines, locomotive wheels, methods for the manufacture of paper pulp, stoves, corn plows.

1870 to 1895, 3500 patents issued, including a digging machine, wheel cleaner, bicycle attachments, eight different varieties of fire escapes, 31 types of heating apparatus, three types of horseshoes (all to the same woman), a windmill, three plumbing devices, a railroad car, and an attachment for unloading box cars.

Judith Jamison, one of the best known innovative dancers in the world today, was the first dancer and the first black person elected to the board of the National Endowment for the Arts in 1970.

Jessica Savitch, the anchorwoman of NBC's Sunday Night News, began her career in broadcasting as a disc jockey while still a New Jersey high school student. ●

GOVERNMENT

...The United Nations

Vijayalakshma Pandit of India was the first woman to be elected president of the United Nations General Assembly (1953).

Angie Brooks of Liberia was the second woman elected to the same position in 1969. Dr. Brooks records a forty year career as a lawyer, humanitarian, stateswoman, and champion of human rights. She helped establish Liberia's first law school and has held several high positions in her own government.

In 1972, Jeanne Martin Cisse, a representative of Guinea to the United Nations, was elected to preside over the United Nations Security Council. Prior to her U.N. assignment she had been Secretary-General of the Conference of African Women.

...International Affairs

Barbara Watson, Administrator of the Bureau of Security and Consular Affairs (1968-74; 1977-), was the first woman to head a State Department Bureau and the first black person to hold a top senior position in the Department of State. Once elected the outstanding law student of New York, she was Executive Director of the New York City Commission to the United Nations before she joined the State Department.

In 1945, **Joan Clark** joined the State Department as a career Foreign Service Officer. She was director of the Bureau of European Affairs for the Department of State from 1972 to 1977; then she became Director of Management Operations for that department. Joan Clark was born in Ridgefield, New Jersey.

Lucile Atcherson Curtis became the first American woman to enter career foreign service (1922). Her daughter, Charlotte Curtis, is the editor of the Op-Ed page of *THE NEW YORK TIMES*.

In other areas of the world women are increasingly joining the ranks of government **EsmeraldaArboledade Cuevas Cancino**, of Columbia, was named Minister of Transport in the 1960's. She was later elected to the Colombian Senate and served as ambassador to Austria and Yugoslavia.

...U.S. Congress

"I never intended to be a run-of-the-mill person."
Barbara Jordan

Barbara Jordan of Texas was the first woman or black to give a keynote address at the Democratic National Convention.

Patsy Mink was the first American Woman of Japanese ancestry to be elected to Congress (1965).

Shirley Chisholm was the first black woman elected to congress in 1965. She ran for the Democratic nomination for President in 1972.

Jeannette Rankin (1880-1973) of Montana was the first woman to win a seat in Congress — in 1916, four years before the suffrage amendment was passed. She was the only member of Congress to vote against U.S. entry into World War I and World War II. Always a dedicated pacifist, she spent her last years leading protests against the Vietnam War.

Margaret Chase Smith was the first member of the U.S. Senate to speak out against Senator Joseph McCarthy. She also ran for the Republican nomination for President in 1964.

...Career Change

"You could count on your fingers the congressmen better versed in world affairs and social economics," said *LIBERTY* magazine of **Helen Gahagan Douglas**. Born in Boonton,New Jersey,she had been a movie actress who became increasingly appalled at the conditions of migratory farm workers in Depression California. She soon became active in various political organizations and eventually ran for Congress. She served in the House of Representatives from 1945 through 1951, building one of the most impressive records ever in the U.S. Congress. She pushed for legislation to continue the Mashall Plan to rebuild Europe after World War II, advocated abolition of the poll tax, and dozens of other issues. She was defeated by what has been called the most unprofessional political campaign on record. Her opponent eventually went on to higher office.

...Federal Government Posts

Azie T. Morton is Treasurer of the United States and Director of the Mint. She is the first black to hold the position.

Carmen Rosa Maymi is the first Puerto Rican to serve as Director of the Women's Bureau for the U.S. Department of Labor.

Jessica Tuchman is an advisor to President Carter on nuclear proliferation and arms control. She is also the daughter of two-time Pulitzer Prize winner **Barbara Tuchman**.

Carolyn R. Payton, a former psychologist at Howard University, is the first woman to direct the Peace Corps.

Arabella Martinez is an Assistant Secretary for Human Development in the Department of Health, Education and Welfare. She started her career in California as a social worker with her main interests being economic development and housing.

...Local and State Government

Washington state and Connecticut have governors who are women.

San Francisco, Chicago, San Antonio, and several other U.S. cities have mayors who are women.

Carol Bellamy, originally from New Jersey, is now head of the New York City Council.

From 1942 through 1968, **Dona Felisa de Gautier** was the mayor of San Juan, Puerto Rico. ●

BUSINESS

■ By the 1970's the King Ranch in Texas was a multinational corporation — raising cattle, pumping oil, breeding race horses. This enterprise was started by **Henrietta Chamberlain King** (1832-1925) when she inherited 500,000 empty Texas acres and the accompanying $500,000 debt. She founded the King Ranch, then as now, the world's largest.

Madame C. J. Walker (1867-1919), the first black millionaire in the U.S., was the daughter of slaves. She started the Madame C. J. Walker Manufacturing Company, employing over 3,000 people throughout the United States. She developed the door-to-door selling method, so as not to have to depend on stores for distribution of her products. A number of other black women emulated Walker's system and set up business of their own, including **Madame Sarah Spencer Washington** of Atlantic City, New Jersey.

After the death of her husband, Cyrus McCormick, **Nettie Fowler McCormick** (1835-1923) found the McCormick Reaper Works nearly bankrupt. She reorganized the company, placed it on sound financial footing, and eventually developed the International Harvester Company.

Another takeover was that of **Miriam Leslie** who inherited Frank Leslie's bankrupt publishing empire with the accompanying debt. She placed the company back on sound footing and at her death left several million dollars.

The Knox Gelatine Company of Camden, New Jersey, and Johnstown, New York, was co-founded by **Rose Knox** (1857-1950). The original business, started in 1890, was worth over a million dollars in less than thirty-five years. Rose Knox added a number of unheard of innovations to her business: the five day work week, two weeks vacation, and sick leave. Eighty-five percent of her employees stayed with her firm 25 or more years.

Elizabeth Bolt (1849-1932) was the manager and half-owner of the Harvard Knitting Mills in Cambridge, Massachusetts. A long personal interest in the welfare of her 850 employees led her to develop a profit-sharing plan which in seven years had given out over a quarter of a million dollars.

Margaret Haughery (1813-1882) known as the "Bread Woman of New Orleans," was the most remarkable of business people. An immigrant from Ireland, her first paying job was as a domestic worker. With her savings she purchased a few cows and started a dairy — soon grown to forty cows. Next she acquired a bakery and before long employed forty workers (to whom she fed a hot lunch every day). She established the first steam bakery in the south, with the new innovation of packaged crackers. At a time when New Orleans was one of the great ports of the world, she was its largest exporter. She personally supported eleven orphanages, ran her own hospital during the Civil War, and began a home for the aged. During frequent Mississippi River floods, she piloted her own raft for her rescue operation.

No one is sure how much money she made in her lifetime, it would have been a considerable amount for all the institutions she personally started and supported. There are no books or records available as Margaret Haughery never learned to read or write. Her will, signed with an X, left large sums of money to ten institutions.

Esther G. Edwards, one of the nation's most influential black businesswomen, is the senior vice-president of Motown Records, the largest independent record manufacturer in the world. She is also a trustee of the School of Management at the University of Michigan at Dearborn. In 1973, she was the first woman elected to the Board of Directors of the Greater Detroit Chamber of Commerce.

Olive Ann Beech is the co-founder and head of Beech Aircraft Corporation, one of the largest producers of private airplanes in the world. She and Walter H. Beech started the company in 1932, she handling the business and he as aircraft designer. In the beginning there were ten employees, by 1976 there were over 8,000.

Dorothy Shaver (1897-1959) was the president of the Lord and Taylor Company. She introduced major innovations to retailing — small shops within a large store: a college shop, junior shop, budget shop. Nearly all major department stores now work on this principle.

Gilda Bojorquez Gjurich, the founder and president of the Amigos Construction Company in California, has worked in the construction industry for over twenty years. In 1974, she was named Outstanding Woman of the Year by the Mexican-American Opportunity Foundation. ●

MEDICINE

■ It was not until this century that a war was fought in which more people died on the battlefield than from disease. For this reason names such as Florence Nightingale and Clara Barton have entered the annals of legend. Pre-twentieth century war nurses were not only in charge of treating the wounded on the battlefield, they also had the job of dealing with the raging cholera and dysentery that infected nearly all armies. More often than not, they were the only medical help available.

Clara Barton (1821-1912), known chiefly as the founder of the American Red Cross, was once a school teacher in Bordentown, New Jersey — in fact, she founded one of the first free schools in the state. During the Civil War, when whole armies were isolated from food and medical supplies, she found methods to deliver the supplies and medical care. Still later, she took part in the Franco-Prussian War and the Spanish-American War. When the Red Cross was instituted in the United States, Clara Barton usually went to any disaster where the Red Cross was at work — the yellow fever epidemic in Florida, a Texas drought, an Illinois tornado. During the Johnstown, Pennsylvania, flood she set up headquarters for five months in an abandoned railroad car, from which she superintended the construction of several relief buildings — including a hotel.

Dorothea Dix (1802-1887) revolutionized the treatment of the mentally ill. By the end of her life, 123 asylums and hospitals had been built through her efforts. She agitated, lobbied, and spoke out on behalf of the mentally ill. In 1845, a state senator in New Jersey presented a resolution with an attached thousand dollar reward "to get Miss Dix across the Delaware and out of the state." In the end she won; Trenton built a hospital

that eventually became a model for the nation. Between 1843 and 1847, she traveled over 30,000 miles criss-crossing the country promoting hospital care. Because of her overwhelming success, states started asking her to come. The Civil War changed her activities when she was appointed Superintendent of Nurses for the Union Army. (One of the people who worked under her was Louisa May Alcott.) When the war ended, she returned to her life of hospital building. Dorothea Dix died in Trenton, New Jersey, in 1887.

Cornelia Hancock (1893-1927) was called the "Florence Nightingale of America" during the Civil War. She was among the first medical personnel to arrive at the Battle of Gettysburg, and she was the first to arrive at the Battle of the Wilderness in Fredericksburg, Virginia. After the Civil War, she founded a school for former slaves in South Carolina. Cornelia Hancock was born in Salem, New Jersey.

Susan La Flesche Picotte (1865-1915) was the first American Indian woman to become a physician. At 14, she entered the Elizabeth, New Jersey,Institute for Young Ladies. By 17, she was a student at Hampton Institute where, upon graduation in 1886, she received a gold medal for high scholastic achievement. Susan La Flesche went on to graduate from the Women's Medical College of Pennsylvania at the head of her class. She returned to the Omahas to become their first doctor. Spending the remainder of her life active in community affairs, she built the first hospital in the area.

Two other La Flesche sisters were also well known. Susette La Flesche Tibbles (1854-1903), who also attended the Elizabeth, New Jersey, Institute, was a well known reformer. Rosalie La Flesche Farley managed a large stock raising business.

Alice Hamilton (1869-1970) founded an entire new branch of science — Industrial Medicine. While working with Jane Addams at Hull House in Chicago, she found she was treating many immigrants for the effects of industrial poisons — workers whose bodies had sustained damage from carbon monoxide, lead fumes, and other emissions of plants and factories. Soon Dr. Hamilton was hired by the state of Illinois (1910) as head of their occupational disease commission, and shortly thereafter by the federal government. She was the first to recognize the diseases workers acquire as a result of the jobs they hold. Alice Hamilton was also the sister of classical scholar Edith Hamilton.

In 1973, **Jeanne M. Stellman** and **Susan Daum** wrote WORK IS DANGEROUS TO YOUR HEALTH, a practical handbook for workers dealing with health and safety. Jeanne M. Stellman, from 1970 through 1972, taught the first course for workers on occupational health at the Rutgers University Labor Education Center.

Plainfield, New Jersey's **Clemence Lozier** (1813-1888) was a woman with two driving interests in life: medicine and reform. In her early years she ran a school in her home, one of the first schools to include physiology, anatomy, and hygiene in the program. By 1849, she decided to go to medical school in Rochester, New York. During her medical career Dr. Lozier was instrumental in getting the first women's medical college in New York — predating Elizabeth Blackwell's medical college by five years.

Clemence Lozier also had some of the sharpest reform instincts of the 19th century. She advocated the reform of women's clothing and in the 1880's helped found a local society for the higher education of women. From the 1830's on, her home was a mecca for the local anti-slavery society, an asylum from the Draft Riots of 1862, a storehouse for pamphlets and petitions — against slavery and for suffrage for all people. Her other reforms included: improved prison conditions, better treatment of the American Indian, and sanitary reform.

Dr. Jane C. Wright was appointed Dean and Professor of Surgery at the New York Medical College in 1967. From a long line of doctors, her father was one of the first black people to graduate from Harvard Medical School. She joined the New York University Medical School in 1955 as an instructor in research surgery, and eventually became Director of cancer chemotherapy research. Honored numerous times, she has found a number of effective drugs and surgical procedures against cancer. To continue the family line, she has two daughters: one a physician and the other a clinical psychologist.

Dr. Martha Tracy (1876-1942) was Dean of the Women's Medical College of Pennsylvania. During the Depression and the accompanying financial setbacks, she was able to keep that school running. Dr. Tracy was born and raised in New Jersey.

In 1943, **Dr. Myra Logan** (1908-1977) became the first woman to operate on a human heart, the ninth such operation to take place. She graduated from the New York University Medical School in 1933 and was the first to receive a scholarship set up by that school for black students. ●

SCIENCE AND TECHNOLOGY

■ The first scientist to win two Nobel Science prizes: Polish born Marie Curie. Her daughter, Irene Joliot-Curie, also won a Nobel Prize in Chemistry. Marguerite Perey, discoverer of the radioactive element francium, at one time worked as Marie Curie's assistant at the French Radium Institute.

Erminnie Smith (1836-1886) lived her entire life with an avid interest in geology. While living in Chicago she had helped to classify and label mineral specimans being collected for display in European museums. She and her family moved to Jersey City, New Jersey, where she spent the next several years raising her children. While she was with her children as they studied in Europe, she decided to take advantage of the situation and continue her own education. In Germany,she studied crystallography at Strassburg and completed a two year mineralogy course at the School of Mines in Freiberg. Returning to Jersey City she turned her own home into something of a mineralogical museum, and began to deliver parlor lectures on geological subjects. In 1876, she founded a society that met monthly to read and discuss papers on science, literature, and art. These gatherings drew as many as five hundred people. In the final years of her life she became interested in a new area of science — anthropology. Erminnie Smith devoted the last years of her life to the study of the American Indian.

Within a few decades of Erminnie Smith, the United States Geological Survey appointed **Florence Bascom** (1862-1945) as the geologist assigned to the Mid-Atlantic Piedmont area. Among the numerous cities and areas she surveyed was Trenton, New Jersey.

Harriet Strong (1844-1929), a leading advocate of flood control and water supply measures in Los Angeles County, California, was an early proponent of federal aid to develop the Colorado River. She was a farmer who owned over two hundred acres of semi-arid land in southern California. In 1887 and 1894, she took out patents on designs for a sequence of water storage dams. She went on to gain national recognition for her exhibits of various water storage control systems.

When her husband, Louis Meyer Frank, and her brother, Louis Bamburger, opened their dry goods store in Newark, New Jersey, in 1893 (L. Bamburger and Company), **Carrie Bamburger Frank Fuld** (1864-1944) worked as the store cashier. Bamburgers was sold just before the 1929 stock market crash, and the money from this transaction they considered a trust to be used for the people of New Jersey. In 1930, Carrie Bamburger Frank Fuld was among the founders of the Institute for Advanced Study at Princeton, an "institute in the field of general scholarship and science, resembling the Rockefeller Institute in the field of medicine." The institute formally opened with a school of mathematics and Albert Einstein as the first professor. The total Bamburger contribution to the Institute was ultimately around eighteen million dollars.

Several distinguished women have worked at the Institute for Advanced Studies:

Amalie Noether, a German educated mathematician. On her death in 1955, Albert Einstein called her one of the most gifted mathematicians of the twentieth century.

Jacqueline Lelong-Ferrand, a French educated mathematician. From 1948 to 1956, she headed the department of calculus and higher geometry at the University of Lille. In 1956, she began her work at the Institute for Advanced Studies. She is now a full professor of pure mathematics at the University of Paris.

Hetty Goldman, an archaeologist, was named professor emeritus at the School for Historical Studies in 1948. She was one of the pioneer excavators in Greece and the Near East.

Almira Phelps (1793-1884) holds a high place in American education, for it was she who was largely responsible for bringing science into the public schools as a standard part of the curriculum. In 1829, she wrote a book on botany that launched her career as a writer of popular school textbooks. In less than ten years her botany text had gone through nine editions, and she had added chemistry and geology books to her writings. From 1839 through 1841, Almira Phelps was the head of the Rahway, New Jersey, Female Institute. She was also the sister of Emma Willard, one of the earliest advocates of education for women.

Almira Phelps

Ellen Swallow Richards (1842-1911) specialties have become contemporary bywords — ecology (which she founded as a science), water pollution, and home economics. Her work led to the Massachusetts Food and Drug Act of 1879. By the early 1880's, she had begun a private practice in sanitary chemistry — examining air, food, and water for harmful chemical content. As a chemist for a fire insurance company, she exposed the dangers of spontaneous combustion of oils in commercial use. As founder of home economics, her main concern was nutrition and diet.

As the first efficiency expert, she charted ways to save waste and human motion in the factory, office, hospital, and home. **Lillian Moller Gilbreth** (1878-1972) was New Jersey's best known engineer, and at the time of her death was the foremost industrial engineer in the world. She conducted private industrial engineering seminars from her home when colleges and universities had no interest in the subject. At a later date when they did become interested, she served on the faculty at Purdue, Rutgers, and the Newark College of Engineering. Over and above her engineering activities she served on numerous federal, military, and civilian councils. Married in 1904 to Frank Gilbreth, they planned and had twelve children. At Frank Gilbreth's death in 1924, she raised her children and actively carried on engineering concerns for nearly fifty years. Some of the Gilbreth children later wrote *CHEAPER BY THE DOZEN*, the story of their home life.

Maria Telkes, born in Hungary is one of the leading solar energy engineers of this century. She believes in the ultimate feasibility of solar energy as the earth's major power source. Working for the navy during World War II, she developed a solar still for life rafts. In 1948, she built the first solar house in Dover, Massachusetts (Telkes designed the solar units, Eleanor Raymond was the architect, and Amelia Peabody sponsored the project). From 1958 through 1960, she was research director of the solar energy laboratory for the Princeton divison of Curtiss-Wright Company. Dr. Telkes holds several patents on solar devices.

Stella Andrassy of Monmouth, New Jersey, holds patents on nine solar devices. She and Dr. Telkes worked together for a number of years in New York, then in New Jersey.

Chien Shiung Wu taught physics at Princeton University in 1943. Born and raised in China, she received her doctorate in nuclear physics in 1940. Her main area of study: atomic research. On leaving Princeton, she joined the science staff of the Division of War Research at Columbia University to work on the Manhattan Project to develop the atomic bomb. She remained with the project through World War II. Long considered one of the world's top nuclear physicists, she is best known as the scientist who disproved the Principle of Parity, a fundamental law of physics.

Leona M. Libby was also a member of the Manhattan Project. She was on the team that built the first nuclear reactor, the first and second Argonne reactors, and the Oak Ridge reactor.

Luisa Fernandez Hansen is a senior physicist at the Lawrence Livermore Laboratory in California. Her main interests: solar and fusion energy.

Shirley Jackson is a theoretical physicist at the Fermi Accelerator Laboratory in Illinois. She was also the first black woman to graduate from the Massachusetts Institute of Technology with a degree in theoretical physics.

Sarah Kerr Myers was born in Brazil and spent her childhood traveling the globe with her parents. With her master's degree in Hispanic American Studies and a doctorate in geography, we joined the staff of the American Geographical Society in 1972. In 1976, she became director of that group. She is best known for her combinations of sociology, geography, and Latin America. Sarah Kerr Myers lives in Teaneck, New Jersey.

Beatrice Hicks was chief engineer of the Newark Controls of Company in 1945, a firm specializing in environmental sensing devices. In the 1960's she joined the Western Electric engineering department.

Catherine H. Bailey, an expert in hybridization, has introduced thirty-nine new varieties of fruits to the market. She is currently at Rutgers University, Department of Horticulture.

Giuliana Tesoro, born in Italy, is an internationally recognized expert on the science and technology of polymers. With her doctorate in organic chemistry from Yale University, she has worked for a number of companies, including the Textile Research Institute of Princeton. Since 1972, she has been at the Massachusetts Institute of Technology. Giuliana Tesoro holds over one hundred United States patents and has been extensively published in technical journals.

Marguerite Shue-wen Chang, born in China, is a research chemist and inventor with the Department of the Navy. She has at least eight inventions to her credit, but all are classified. It is known that she developed devices for triggering underground nuclear explosions. ●

QUIZ ANSWERS

1. B. Queen Elizabeth II was trained as an auto mechanic in World War II Britain.

Ella Grasso is governor of Connecticut.

Josephine Baker was the sensation of Europe in the 1920's. During World War II she was active in the French resistance, for which she was received the Legion of Honor.

Shirley Chisholm was the first black woman elected to congress.

2. C. Madame C.J. Walker, also the first black millionaire in the U.S. (see p. 16).

Olive Ann Beech is one of the founders of Beech Aircraft, one of the largest builders of private planes.

Dona Maria de Benavides was a well known printer in Mexico City in 1689.

Gertrude Ederle swam the English Channel in 1926, cutting 2 hours off the previous record.

3. C. A pilot (see p. 10).

4. A. Maria Telkes (see p. 18).

Elizabeth Pickering was the first known English woman printer in 1539.

Lydia Child was editor of the first children's magazine in the U.S. (1826).

Ida Pfieffer in the early 1800's wrote *WOMAN'S VOYAGE AROUND THE WORLD*, having travelled nearly 200,000 miles.

5. D. Julia Morgan, who designed over 700 buildings.

Elinor Smith made her mark — and appropriate headlines — when she flew under all of the bridges of New York City's East River one Sunday afternoon in 1928. The Department of Commerce suspended her pilot's license.

Helen Taussig developed the opeation for "blue babies."

Maria Bartola was an Aztec Indian (original name unknown) who wrote the history of the Spanish conquest from the Aztec point of view in the 1500's.

6. C. Maggie Walker, who was also the first black person to become a bank president. (see p. 9).

Zelia Nuttall was an archaeologist in Mexico at the turn of the century.

Gertrude Vanderbilt Whitney was a sculptor (Washington's "Titanic" memorial among her works), and founder of the Whitney Museum of American Art.

Gloria Dean Scott is head of the Girl Scouts and the first black person to hold that position.

7. A. Lise Meitner, a mathematical-physicist, figured out the calculations necessary to split the atom.

Irene Joliot-Curie discovered artificial radioactivity for which she and Fredric Joliot-Curie shared the Nobel Prize.

Maria Goeppert-Mayer received the Nobel Prize for Physics for her work on the structure of atomic nuclei.

Marie Curie was the first scientist to win two Nobel Prizes (see p. 18).

8. D. Paterson, N.J. (See p. 7).

9. B. Ida Tarbell, who wrote *THE HISTORY OF THE STANDARD OIL COMPANY* in 1904.

Ida Wells-Barnett is best known for her investigations of southern lynchings. She also founded the first suffrage organization for black women.

There are two well known people named Daisy Bates. One was a civil rights worker in Arkansas. The second was a correspondent for the London *TIMES*, who went on assignment to Australia and stayed for 35 years to become the world's expert on Native Australians.

Augusta Savage, a sculptor, spent much of her life working on behalf of black artists.

10. B. Dr. Florence Sabin

Dr. James Berry (? 1797-1865) was in the British Medical Corps, serving at many battles including Waterloo. From 1856 to 1865 Dr. Berry was Inspector General of the British Army, the highest ranking medical officer. Only at death was it discovered that Dr. Berry was a woman and had had at least one child. Her identity is unknown.

Katherine Blodgett was known mainly for her work in monomolecular films with the General Electric Company.

Dr. Mary Ellen Avery, born in Camden, N.J., is head of the Children's Hospital Medical Center in Boston and a former department head at the Harvard Medical School.

11. B. Annie Smith Peck (see p. 8).

Alexandrine Tinne was a Dutch explorer in North Africa in the last century.

Mary Ann Shadd (1829-1893) was the first black woman to practice law in the U. S. and the first to edit a newspaper.

Carlota Matienzo (1881-1926) was largely responsible for establishing Puerto Rico's school system.

12. D. Patience Wright of Bordentown, N.J. (see p. 6).

Edmonia Lewis was a well known artist in the last century and was probably the first black/American Indian woman sculptor in the U.S.

Bertha Von Suttner won the Nobel Prize for Peace in 1905.

Mrs. Voelker introduced the idea of picture post cards to Atlantic City in 1895.

13. A. Katherine Graham.

Marguerite Higgins received the Pulitzer Prize for her coverage of the Korean War.

"Dickey" Chappelle, a photographer, covered Iwo Jima, the Hungarian Revolution, the war in Algeria, and a number of other war zones.

Lillian Wiggins, editor of the WASHINGTON AFRO-AMERICAN NEWSPAPER, covered the civil war in Nigeria, and many other events in Africa.

14. C. Dr. Tenley Albright won the Olympic Gold Medal for figure skating in 1956.

Margaret Butler is the Director of the Code Center for the Argonne National Laboratory.

Jocelyn R. Gill was chief of NASA's In-Flight Space Program.

Cecilia Helena Payne-Gaposchkin, one time head of the astronomy department at Harvard, is now with the Smithsonian Astrophysical Observatory.

15. B. Ann S. Stephens.

Caroline Herschel discovered 7 comets in the last century.

Mary Anning discovered the first dinosauer bones.

Anna Edson Taylor was the first person to successfully go over Niagra Falls in a barrel.

16. B. Alice Hamilton (see p. 17).

Sarah Winneumucca was an American Indian who worked for reform in the last century.

Mary Goddard printed the first signed copy of the Declaration of Independence.

Joy Bright Hancock, born in Wildwood, N. J., was director of WAVES in World War II.

17. A. Dr. Virginia Apgar, who was born in N.J.

Ruth Cheney Streeter, Director of the U.S. Marine Coprs Women's Reserve, lives in Morris-

town, N.J.

Sarah T. Hughes was the judge who swore Lyndon Johnson in as President.

Lou Henry was the first American woman to graduate with a degree in geology. She later married Herbert Hoover, also a geologist.

18. D. Fanny Palmer (see p. 14).

Ellen Craft, who escaped from slavery in 1848, in 1870 founded a school in the south for freed slaves.

Tina Modotti, an Italian born photographer, was best known for her photographs of Mexico in the 1920's.

Annie L. Williams, a literary agent, sold both *GONE WITH THE WIND* and *THE GRAPES OF WRATH* to the movies.

19. B. Frances Xavier Cabrini, several of whose institutions are located in N.J.

Mary McLeod Bethune was the founder of Bethune-Cookman College and the National Council of Negro Women. She was also an advisor to FDR.

Elizabeth Ann Seton was the first native born American declared a saint.

Evelyn Dubrow, the "dean of the labor lobbyists," at one time headed the New Jersey Textile Workers Union of America.

20. A. Henrietta Swallow Richards (see p. 19).

Rachel Carson in the early 1960's began the environmental movement.

Dr. Janet Travell was physician to President John F. Kennedy.

Baroness de Beausalieil (17th century France), a mining engineer, wrote of the relationship between a country's independence and its use of natural resources. She recorded the locations of mines and ore deposits throughout France and detailed the qualifications for becoming a mining engineer. ●

. . .WHY ARE SO FEW WOMEN FOUND IN TECHNICAL FIELDS?

Yvonne Clark is a mechanical engineer who graduated from Howard University, and was the first woman in Vanderbilt's Graduate School of Engineering Management. She was one of the first women or black people hired as an engineer by the Ford Motor Company. She feels the lack of understanding and counseling is to be blamed for the scarcity of women in technical fields.

Ruth Gordon, a California civil engineer believes guidance for young women should begin earlier than the junior or senior high school years, before it is too late to take the whole sequence of math and science courses that are a prerequisite for freshman college requirements. She strongly urges that girls in elementary school be taken on field trips to places where they can see professional women working as engineers, physicians, attorneys, veterinarians.

Patience Wright

Crane Operator. World War II.

Lumberjacks. World War II.

JOB IDEAS FOR THE 1980's

...Jobs that require at least high school training

Air-Conditioning, Heating, and Refrigeration Mechanics. $12,000 to $25,000 per year (1977). Most workers learn on the job.

Auto Body Repairer. Salary, about $20,000 per year (1977).

Business Machine Repairer. $11,000 to $21,000 (1977). The best opportunities are for those trained in electronics.

Carpenter. $22,300 (1977) is the average income for a full-time carpenter employed at about $11 per hour.

Electrician. $15,300 to $24,500 (1977). Maintenance electricians earn about $8 per hour, while construction electricians earn about $12 per hour.

Plumber. $25,100 (1977). Average salary about $12 per hour.

Police Officer. $10,000 to $22,500 (1977). The average salary for urban, experienced police officers is about $17,000 per year.

Press Operator. $19,500 (1977). The best money is earned by offset press operators who earn about $10 per hour.

Welder. $12,000 to $27,000 per year (1977). Experienced welders earn about $13 per hour.

...Jobs that require some formal education after high school

Airplane Mechanic. A 1979 graduate from New York City's Aviation High School was offered $20,000 for her first job with a major airline.

Airplane Pilot. Between 1979 and 1985, the commercial airlines will need 10,000 new pilots. The top salaries, as of 1979: $70,000 per year.

Computer Service Technician. $11,700 to $22,600 per year. With training many start as high as $13,000 per year.

Engineering Technician. $11,000 to $18,400 (1977). Those in highly responsible positions often earn over $22,500.

Physician's Assistant. $12,000 to $20,000 (1977). A brand new field, with the salaries wide open.

...Jobs that require at least four years of college

Accountants. $13,000 to $27,000 (1977). CPA's earn the highest salaries; chief accountants for major firms often earn $40,000 to $50,000 per year.

Architect. $25,000 to $43,000. The demand here is expected to be high.

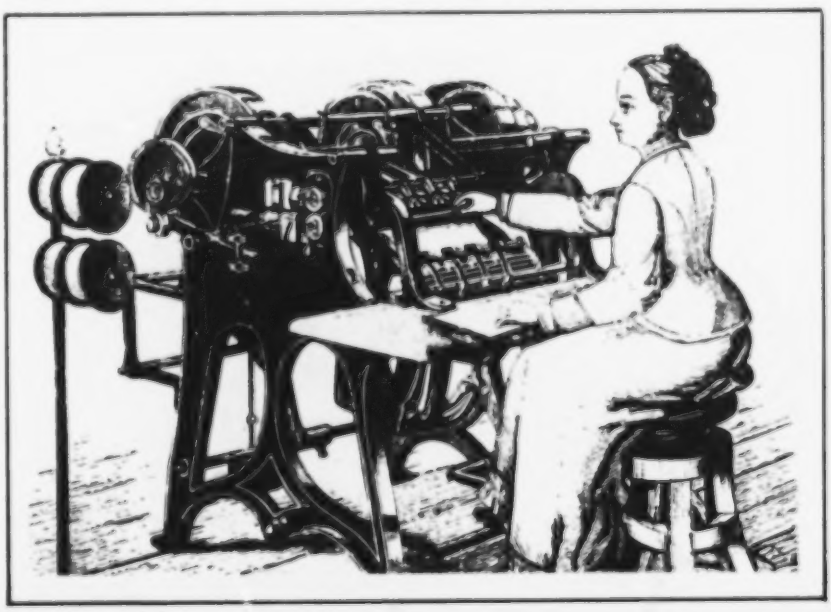
Optometrist. $17,000 to $40,000. The higher figure reflects the experienced. ●

"Somewhere along the line of development we discover what we really are and then we make our real decision for which we are responsible. Make that decision primarily for yourself because you can never really live anyone's life . . .The influence you exert is through your own life and what you become yourself."

Eleanor Roosevelt

"If you want badly enough to do a thing, you usually do it very well; and a thing well done, as society is organized, usually works out to the benefit of others as well as yourself. This applies to sport, business, friendship, and art; to football, chain-store management, loyalty, and the sonnet."

Amelia Earhart



. . . Finding Pictures

Daniel, Pete. A TALENT FOR DETAIL: The Photographs of Miss Frances Benjamin Johnston, 1889-1910 (Harmony Books, 1974) page 51 – Shoemaker, Lynn, Massachusetts
pages 54,55 — Cigar box factory
page 56 — bookbinder
(Frances Benjamin Johnston was a turn-of-the-century photographer. She took pictures of everything from miners in Pennsylvania and Minnesota to women working in Massachusetts factories and black life in rural Virginia. Her interest in travel, places, people, social concerns, and her ability to camera record made her one of the best early documentary photographers.)

Baxter, Annette K. TO BE A WOMAN IN AMERICA 1850-1930 (New York Times Books, 1978)
page 39 — Chemistry students, Smith College
page 53 — American Indians, tanning hides
pages 90,91 — World War I factory workers
page 172 — Cheyenne woman building a tipi
page 214 — World War I farmers
page 215 — World War I automobile mechanic
page 216 — blacksmith, 1924
"Remarkable American Women, 1776-1976" was a Special Report issue of LIFE magazine issued in 1976. This magazine was purchased by most libraries and is probably available in the media center vertical file. The issue includes a wealth of pictures with short articles on the accomplishments of 166 American women.
page 4 — Amelia Earhart
page 7 — Lillian Gilbreth
page 14 — Anne Morrow Lindbergh
page 19 — Barbara Jordan
page 20 — Nellie Bly
page 22 — Rebecca Lukens
page 26 — Annie Smith Peck
page 27 — Julia Morgan
page 27 — Olive Ann Beech
page 40 — Dolores Huerta (Chicana organizer for the United Farm Workers)
page 40 — Mary McLeod Bethune
page 40 — Dorothea Dix
page 40 — Mother Jones
page 40 — Ida Tarbell
page 52 — Dorothea Lange
page 63 — Wilma Rudolph
page 68 — Grace Hopper
page 68 — Chien Shiung Wu
page 70 — Alice Hamilton
page 74 — Madame C.J. Walker
page 98 — Ellen Swallow Richards

CLASSROOM IDEAS

. . . Bulletin Board Ideas

Cut out newspaper articles on women in your community and post them on a bulletin board. Has anyone opened a new business? Been elected to a local or state office? Been promoted to a higher position in their job?

Select an area of work that would be considered non-traditional for women (mechanics, pilots, etc.). Work an entire bulletin board around the history of women in that field.

. . . Discussion

Make a list of the five women and five men you most admire, with explanations for each selection. What criteria did you use for selection? Was it the same for each group?

. . . Advertising

The images of women are especially evident in advertising. If you are near a library with a substantial backlog of periodicals on microfilm, compare the advertising images of the 1920's, 1930's, 1940's, etc. What are the differences? What remains the same? Note: There are a number of good books published on the image of women in Western culture. *WAYS OF SEEING*, by John Berger (Penguin, 1977), looks at the background of the images of Europe and compares them to today's Madison Avenue techniques. Erving Goffman's *GENDER ADVERTISEMENTS* (Harper, 1979) pictorially deals with the images of both men and women. Carol Wald's *MYTH AMERICA*: Picturing Women, 1865-1945 (Pantheon, 1975) uses hundreds of pictures from old ads and postcards. Kathryn Weibel's book, *MIRROR MIRROR*: Images of Women Reflected in Popular Culture (Anchor, 1977), includes chapters on women in fiction, movies, magazines, and advertising.

. . . Ideas for Slide Programs

The kinds of jobs women held in World War I and World War II.

The kinds of jobs woman held in colonial America.

Work in the early Industrial Revolution.

Women in atomic science.

Women in aviation.

Famous women of New Jersey.

. . . The School Media Center

Read the Introduction to Edna Yost's *AMERICAN WOMEN OF SCIENCE* at the beginning of this book. Examine your own school media center to see what kinds of materials are available.

. . . Resource Files

Set up a resource file of people in your community who hold non-traditional jobs.

Develop a resource file or publish a pamphlet on the history of women in your county.

. . . Ideas for Writing

Essay Topics:

"Those hardest hit by change are those who imagine it never happened before." (Elizabeth Janeway)

No one gets through life without working.

"I'd like to have been there when . . ." Select one woman you especially admire, research her accomplishments, then write as if you were a spectator to an event in which she was involved. Ideas: . . . Harriet Tubman led the Underground Railroad. . . . Wilma Rudolph won three Olympic Gold Medals. . . . Dorothy Thompson was expelled from Germany in 1934. . . . Gwendolyn Brooks won the Pulitzer Price. . . . Eleanor Roosevelt was in the White House.

Amelia Earhart flew over the Sahara Desert.

Compare the working lives of family members before and after the Industrial Revolution.

How do you see yourself in five, ten, twenty years? What kind of job will you have? Where will you be living? How do you see yourself in the future?

. . . Oral History Project

Select a decade — the Depression, World War II, etc. Find women from your own community who lived in that period and interview them. If your school has equipment available, record the interviews on audio or video tape. What kinds of work did they do? How were their lives different from now? ●

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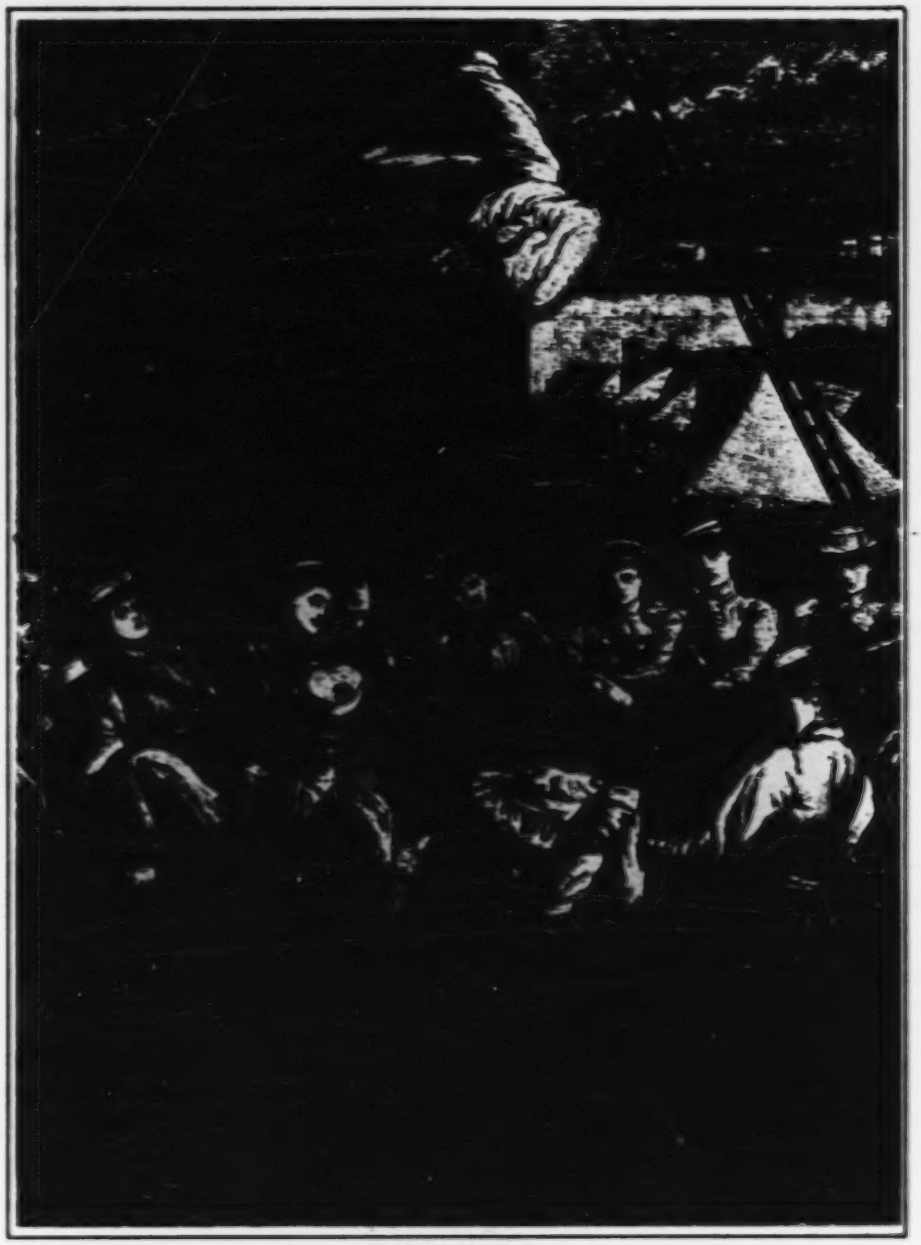

1893 fire brigade.

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Medieval alchemists.